CLAIMS

1. A method for manufacturing sizeable quantum dots of Indium Nitride comprising at least growing of an Indium Nitride layer onto a layer of crystalline buffer, said Indium Nitride and said buffer having a similar lattice structure with a lattice mismatch between said Indium Nitride and said buffer being greater than 5%, so as to produce surface strains allowing the Indium Nitride to self-organise onto said buffer so as to form a plurality of sizeable quantum dots.

2. The method of claim 1, wherein the growth temperature of Indium Nitride is at least 500°C, said temperature allowing controlling the size of said quantum dots.

3. The method of claims 1 or 2, wherein said crystalline buffer is made of Gallium Nitride or Aluminium Nitride.

4. The method of one of claims 1, 2 or 3, wherein the growth of Indium Nitride is done by the process of Metal Organic Vapor Phase Epitaxy.

5. The method of claim 4, wherein the gazes used to perform said Metal Organic Vapor Phase Epitaxy process are TMIn and ammonia.

6. The method of claim 5, wherein the molar ratio of ammonia and TMIn is above 7150.

7. The method of one of the preceding claims 2 to 5, said method further including said growth temperature and/or surface strains so as to obtain a surface density of said quantum dots less than 10^8 cm^{-2}.

8. The method of claim 7, said method further including isolating at least one quantum dot of said plurality of quantum dots by microelectronics means so as to form a single photon source.

9. An layered unit comprising at least a Gallium Nitride or a Aluminium Nitride buffer, and a plurality of Indium Nitride quantum dots deposited onto said buffer, the surface density of said quantum dots being less than 10^8 cm^{-2}.

10. The layered unit of claim 9, wherein one single quantum dot of said plurality of quantum dots is isolated by microelectronics means so as to form a single photon source.